

**UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA**

3M Innovative Properties Co. and
3M Company,

Civil No. 13-1287 (DWF/JSM)

Plaintiffs,

v.

**MEMORANDUM
OPINION AND ORDER**

GDC, Inc., and Monadnock
Non-Wovens, LLC,

Defendants.

Ariel O. Howe, Esq., David J. F. Gross, Esq., David R. Merritt, Esq., Elizabeth Cowan Wright, Esq., James W. Poradek, Esq., Theodore M. Budd, Esq., and Timothy M. Sullivan, Esq., Faegre Baker Daniels LLP, counsel for Plaintiffs.

James K. Cleland, Esq., and Joshua E. Ney, Esq., Brinks Gilson & Lione; and Kurt J. Niederluecke, Esq., and Timothy M. O'Shea, Esq., Fredrikson & Byron, PA, counsel for Defendant GDC, Inc.

Joshua M. Dalton, Esq., and Lawrence T. Stanley, Jr., Esq., Morgan, Lewis & Bockius LLP; and Kurt J. Niederluecke, Esq., and Timothy M. O'Shea, Esq., Fredrikson & Byron, PA, counsel for Defendant Monadnock Non-Wovens, LLC.

INTRODUCTION

This matter is before the Court on a Motion for Summary Judgment of Noninfringement, Invalidity, and No Lost Profits, brought by Defendants Monadnock Non-Wovens, LLC ("MNW") and GDC, Inc. ("GDC") (together, "Defendants") (Doc. No. 184); and three separate motions to exclude expert testimony brought by Defendants (Doc. Nos. 186, 188, 190). For the reasons stated below, the Court denies the motions.

BACKGROUND

This litigation involves allegations by Plaintiffs 3M Innovative Properties Co. and 3M Company (together, “3M”) that Defendants are infringing one or more claims of U.S. Patent No. 5,773,375, entitled “Thermally Stable Acoustical Insulation” (the “’375 Patent”), through the manufacture and sale of thermally stabilized insulation products. (Doc. No. 1 (“Compl.”) ¶¶ 11-15.)

I. Technology at Issue

3M invented polypropylene meltblown microfiber acoustic insulation and began selling it under the name Thinsulate™ Acoustic Insulation (“TAI”) in the early 1990s. (Doc. No. 193 (“Dalton Decl.”) ¶ 27, Ex. 25 (“Krieg Dep.”) at 23; *id.* ¶ 28, Ex. 26 (“Thompson, Jr. Dep.”) at 123; Doc. No. 209 (“Wright Decl.”) ¶ 33, Ex. EE.)¹ TAI is used in automobiles for noise reduction. 3M’s first version of TAI was covered by U.S. Patent No. 5,298,694, entitled “Acoustical Insulating Web” (the “Thompson Patent”), which claims a method for attenuating sound waves, whose steps include providing a non-woven acoustic insulation web with fiber diameter of less than about 15 microns, thickness of at least about 0.5 cm, density of less than about 50 kg/m³, and pressure drop of at least about 1 mm water at a flow rate of about 32 liters/min. (’375 Patent at c. 1, ll:9-24; Doc. No. 194-2, Ex. 31 (the “Thompson Patent”) at c. 19, ll:38-47.)

3M’s first version of TAI provided several advantages over existing insulation, namely higher sound absorption per weight and easier compressibility. (Dalton Decl.

¹ TAI is a nonwoven meltblown material made of extremely small polypropylene and polyester microfibers. (Dalton Decl. ¶ 3, Ex. 1 (the “’375 Patent”) at c. 1, ll:9-24.)

¶ 70, Ex. 68 (“Osswald Validity Report”) ¶ 39.)² However, in 3M’s first version of the TAI, the polypropylene microfibers were susceptible to degradation at high temperatures over time and therefore could only be used in lower temperature areas of a car. (’375 Patent at c. 1, ll:23-29; Osswald Validity Report ¶¶ 39-40, 49.) TAI was not recommended for use in areas that could become very hot, such as areas near the engine or surrounding the passenger cabin. 3M endeavored to solve the problem of degradation at high temperatures (or lack of thermal stability) and in March 1995 tasked Dr. Michael Swan and Ms. Ruth Ebbens with finding a solution, the result being 3M’s thermally stable acoustical insulation claimed in the ’375 Patent. (Dalton Decl. ¶ 55, Ex. 53 (“Lickfield Dep.”) at 62-64; *id.* ¶ 16, Ex. 14 (“Swan Dep.”) at 25-26; Thompson, Jr. Dep. at 19-21, 137-139; *id.* ¶ 7, Ex. 5 at 3M00001375; Wright Decl. ¶ 6, Ex. D at 3M00000316; Osswald Invalidity Report ¶¶ 21-22.)³

The ’375 Patent is a product patent that claims a thermally stable meltblown polypropylene microfiber acoustical insulation that has an average effective fiber diameter (“EFD”), thickness, density, and pressure drop necessary for effective acoustical insulation and also has a thermal stabilizer or antioxidant uniformly distributed

² TAI includes two types of microfibers: polypropylene and polyester. (Osswald Validity Report ¶ 35.) The polypropylene fibers dissipate sound energy into heat. (*Id.*) The polyester fibers provide durability and loft (fluffiness) retention. (*Id.*) Existing automotive acoustical insulation products included “shoddy,” which consists primarily of clumps of cotton fibers. (*Id.* ¶ 39.)

³ The inventors of 3M’s ’375 Patent are Michael D. Swan and Ruth A. Ebbens. (’375 Patent.)

throughout the microfibers such that they are stable at 135° C for at least 10 days. ('375 Patent at c. 7, ll:30-39; c. 7, ll:43-c.8, ll:29; c. 11, ll:37-12, ll:54; Ex. 1 at c. 11, ll:37-48.) The thermal stability of the insulation allows it to be used in more locations in cars than the original TAI, namely in areas that become hot.

In particular, the '375 Patent is a product patent with seventeen claims, all directed at a “thermally stable acoustical insulation microfiber web” comprising certain elements.

Independent Claim 1 of the '375 Patent states:

1. A thermally stable acoustical insulation microfiber web for attenuation of sound waves comprising a melt-blown polypropylene microfiber web having an average effective fiber diameter of less than about 15 microns, a thickness of at least about 0.5 cm, a density of less than 50 kg/m³ and a pressure drop of at least about 1 mm water at a flow rate of about 32 liters/min., said polypropylene microfibers formed of polypropylene homopolymers, copolymers or blends thereof with a nonvolatile thermal stabilizer or antioxidant is uniformly distributed throughout the microfibers such that the microfibers are thermally stable for at least 10 days at 135° C.

('375 Patent at c. 11, ll:38-48.)⁴

3M manufactures its polypropylene meltblown web as follows: polypropylene pellets are introduced into a hopper; the pellets are fed from the hopper to an extruder,

⁴ When originally filed, the application included claims directed to a thermally stable acoustical insulation *product*, as well as claims directed to a *method* of forming a thermally stable acoustical insulation. In response to an Office Action, wherein the claims were rejected as unpatentable over the acoustical insulating webs discussed in the Thompson Patent, 3M elected to pursue the product claims.

where the pellets are subjected to pressure and heat so as to make them molten; the molten pellets are pumped toward a blown-microfiber die; and, the polypropylene melt is conveyed through the die that emits the polypropylene as extremely small microfibers that are stretched and made thinner by hot air and then collected to make a microfiber web. (Osswald Invalidity Report ¶¶ 27-29.) While the basic process has not changed since 1996, certain aspects of the process have evolved. (*Id.* ¶ 29.)

II. The Accused Products

In or around 2003, MNW observed that 3M had a “dominant position in the high performance meltblown” automotive market and decided to pursue a meaningful market share by selling meltblown polypropylene acoustical insulation. (Wright Decl. ¶ 42, Ex. NN at MNW054780, MNW054782.) MNW now manufactures the meltblown web and sells it to GDC, which then cuts it for use in door panels and markets it under the brand name Sonozorb. (Dalton Decl. ¶ 69, Ex. 67 (“Griffin Dep.”) at 16; Wright Decl. ¶ 17, Ex. O at MNW075127-28.)⁵

III. Patent Claims

3M asserts that in 2012, it obtained samples of Sonozorb used in Ford Explorer and Ford Edge liftgate panels, and that it conducted thermal stability tests on the samples, leading it to determine that the samples infringed the ’375 Patent. 3M filed the present Complaint on May 29, 2013, alleging that Defendants’ manufacture and sale of thermally stabilized acoustical insulation products under the brand name Sonozorb infringe the ’375

⁵ The Court refers to both MNW’s and GDC’s products as either the “Accused Products” or “Sonozorb.”

Patent. (Compl. ¶¶ 10-15.) Defendants deny 3M's allegations and seek a declaration that the '375 Patent is not infringed and/or it is invalid.

In October 2014, the parties filed motions for claim construction, requesting that the Court construe the disputed terms of the '375 Patent. (Doc. Nos. 78, 82.) After a hearing and a thorough review of the parties' submissions, the Court filed its *Markman* Order, wherein it construed the disputed terms and found the claims to be definite. (Doc. No. 155 ("*Markman* Order") at 21, 30, 35, 41, and 45.)

DISCUSSION

Defendants move for summary judgment of noninfringement, invalidity, and no lost profits. In addition, Defendants move to exclude various expert opinions.

I. Motions to Exclude Expert Opinions

Before accepting the testimony of an expert witness, the trial court is charged with a "gatekeeper" function of determining whether an opinion is both relevant and reliable. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 589-90 (1993). Under Federal Rule of Evidence 702, an expert may testify in the form of an opinion or otherwise if: (1) the expert's scientific, technical, or other specialized knowledge will help the fact-finder to understand the evidence or determine a fact in issue; (2) the testimony is based on sufficient facts or data; (3) the testimony is the product of reliable principles and methods; and (4) the expert has reliably applied those principles and methods to the facts of the case. Fed. R. Evid. 702; *see also Lauzon v. Senco Prods., Inc.*, 270 F.3d 681, 686 (8th Cir. 2001). The proposed expert testimony must satisfy three prerequisites: (1) it

must be useful to the fact finder in deciding an ultimate issue of fact; (2) the witness must be qualified; and (3) the proposed evidence must be reliable. *Id.*

The Court's focus should be on a preliminary assessment of "whether the reasoning or methodology underlying the testimony is scientifically valid" and "whether that reasoning or methodology properly can be applied to the facts in issue." *Daubert*, 509 U.S. at 592-93. In determining whether the proposed expert testimony is reliable, the Court may consider: (1) whether the theory or technique can be and has been tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) the known rate of potential error; and (4) whether the theory has been generally accepted. *Daubert*, 509 U.S. at 593-94. Keeping the above in mind, the Court also notes that "Rule 702 reflects an attempt to liberalize the rules governing the admission of expert testimony," and it favors admissibility over exclusion. *Lauzen*, 270 F.3d at 686.

When examining an expert opinion, a court applies a general rule that "the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross-examination." *Bonner v. ISP Techs., Inc.*, 259 F.3d 924, 929 (8th Cir. 2001) (citation and quotation omitted). "Only if the expert's opinion is so fundamentally unsupported that it can offer no assistance to the jury must [it] be excluded." *Id.* at 929-30. In *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999), the Supreme Court concluded that "the trial judge must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable." 526 U.S. at 152. The test for reliability is flexible, and *Daubert's* list of factors does not necessarily apply to

every expert or in every case. *Id.* at 141-42. The district court has broad latitude in both deciding how to determine reliability as well as making its ultimate reliability assessment. *Id.* Significantly, expert opinions in patent litigation must be based on the Court's claim construction in order to be considered relevant and reliable. *See, e.g., Ecolab USA Inc. v. Diversey, Inc.*, Civ. No. 12-1984, 2015 WL 2345264, at *5 (D. Minn. Mar. 14, 2015) (citations omitted); *see also Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1206-07 (Fed. Cir. 2010) (affirming the district court's exclusion of expert testimony that imposed a claim construction rejected by the district court).

A. Drs. Timothy Osswald and R. Carolyn Otten

Defendants seek to preclude opinions based on heat age testing using the “dome” method and opinions relying on certain indirect evidence. In order to prove infringement of the '375 Patent,⁶ 3M must establish that “the microfibers [of the Accused Product] are thermally stable for at least 10 days at 135° C.” 3M attempts to prove infringement of this limitation through both direct and indirect evidence introduced by Dr. Timothy Osswald (“Osswald”) and Dr. R. Carolyn Otten (“Otten”). In particular, Osswald opines that Sonozorb is covered by, and therefore infringes, Claims 1 and 7-11 of the '375 Patent, including the limitation that “the microfibers are thermally stable for at least 10 days at 135° C.” (Dalton Decl. ¶ 26, Ex. 24 (“Osswald Infringement Report”) ¶¶ 142-182.) In reaching his conclusions, Osswald relied on five separate tests in which Sonozorb samples were exposed to a temperature of 135° C for 10 days or more: three tests conducted

⁶ The bulk of the infringement analysis rests on Claim 1, as all other asserted claims are dependent claims.

internally by 3M (Acoustical Test Order (“ATO”) 2891, ATO 2892, and ATO 3066) (the “3M Tests”); one test commissioned by 3M and conducted by Chemir-Evans Analytical Group; and one test commissioned by Defendants and conducted by Exova Group. (*Id.* ¶¶ 15-16 & Exs. D, E.) Each of the tests used the “dome” method to test samples of the Accused Products.⁷ The “dome” method involves placing a sample on a tray having sides and placing another tray on top, so as to minimize air flow.

1. Opinions Based on “Dome” Tests

Defendants move to preclude both Osswald and Otten from offering opinions that the Accused Products infringe the ’375 Patent based on heat age testing conducted using the “dome” method. Defendants maintain that without relying on the “dome” method test, 3M has no basis to allege that the Accused Products infringe the ’375 Patent and, therefore, that this motion to exclude is dispositive of 3M’s infringement claims.

Defendants contend that the “dome” test is scientifically unreliable as a method for determining whether an acoustical insulation product meets the limitation of thermal stability. In support, Defendants submit that the proper method to heat age test samples is the “open tray” test, which involves placing samples on an open tray and putting the tray in an air flow oven. Defendants point out that the “open tray” method is the only testing method used by inventors to heat-age test samples described in the ’375 Patent, and that

⁷ Defendants tested samples using both the “dome” and “open tray” methods. For the “dome” test, Defendants placed samples in an aluminum tray, placed a second tray on top, and secured the trays with binder clips. The “open tray” test used an aluminum tray with no cover placed in a forced air oven.

the “dome” method did not exist until after the ’375 Patent issued. Defendants further assert that the choice of test method is material because the Accused Products perform differently when tested using the “open tray” test than when tested using the “dome” method.⁸

In addition, Defendants argue that the “dome” method has not been empirically tested, does not replicate the environment where acoustic insulation is exposed in real-life applications, has not been subjected to peer review or publication, and is not accepted in the industry. Defendants point out that the “dome” method is only performed internally at 3M. Defendants also argue that the “dome” method is unreliable because it introduces uncontrolled variables, such as temperature, oxygen concentration, and off-gas concentrations. Defendants maintain that these uncontrolled variables render the “dome” heat age test scientifically unreliable as a method for determining that an acoustical insulation product meets the limitation that “the microfibers are thermally stable for at least 10 days at 135° C.”

Defendants submit their own expert opinions to correct what they see as 3M’s false statements regarding the “dome” test method. Specifically, Defendants point to the expert report of John Long (“Long Report”), a Noise, Vibration, and Harshness engineer at Ford Motor Company, who asserts that 3M’s representations concerning the air flow to which

⁸ Defendants commissioned their own tests of the thermal stability of the Accused Products, one test conducted by Exova, and a second test conducted by Reliant Labs, Inc. (“Reliant”), both using the “open tray” method. Defendants submit that “open tray” tests confirm that the Accused Products are not thermally stable as claimed in the ’375 Patent. Defendants argue that certain variables cause the samples to remain “thermally stable” longer in the “dome” test versus the “open tray” test.

acoustical insulation is subjected in a vehicle are wrong. (*See generally* Dalton Decl. ¶ 24, Ex. 22 (“Long Report”).) Instead, Defendants argue that acoustical insulation is always exposed to air flow and should be tested accordingly. (*Id.* ¶¶ 34, 58.)⁹

3M argues that the “dome” testing comports with the *Markman* Order and is reliable. 3M points to evidence that the “dome” test method is an effective way to minimize air flow. (*See* Dalton Decl. ¶ 46, Ex. 44 (“Osswald Rebuttal Decl.”) ¶ 128; Dalton Decl. ¶ 5, Ex. 3 (“Osswald Dep.”) at 59; *id.* ¶ 23, Ex. 21 (“Spiegelberg Dep.”) at 206.) 3M further submits that the “dome” test in a forced air or convection oven allows for sufficient air flow to replicate a typical environment where acoustic insulation is used, replenishes oxygen, and ensures that off-gassing does not affect the test. In support, 3M cites to Osswald’s explanation that gaps between the “domed” trays allow for airflow, even when that airflow is minimized. (*See* Osswald Dep. at 91-92, 170-72, 189-190, 211-12.) 3M also submits evidence that it has used the “dome” method to test its TAI since at least 1999 and contends that this long-standing use supports the method’s reliability. (*See* Dalton Decl. ¶ 38, Ex. 36 (“Van Dam Dep.”) at 32, 61-62, 79-80; Wright Decl. ¶ 29, Ex. AA.) Moreover, 3M submits that the fact that it uses the “dome” method internally is irrelevant, and the fact that the “dome” test has been put to non-judicial uses weighs in favor of its reliability. 3M also argues that Defendants’ reliance on the Long Report is

⁹ For example, Defendants point to examples where acoustical insulation is exposed to airflow: the air extraction system, instrument-panel close-out panels, and door panels. (*See, e.g.*, Long Report ¶¶ 55, 58.)

misplaced because that report is extrinsic evidence and is inconsistent with the intrinsic record.

Claim 1 requires that “the microfibers are thermally stable for at least 10 days at 135° C.” In the *Markman* Order, the Court concluded that “whether a test sample is ‘thermally stable’ will depend on a comparison test (color, dimension, suppleness) used by skilled artisans who are able to detect any substantial change in color, dimension, or suppleness using oven age testing and visual examination.” (*Markman* Order at 35.) In addition, with respect to “for at least 10 days at 135° C,” the Court concluded that any test must minimize the effect of air flow:

[A] skilled artisan would understand the term “for at least 10 days at 135° C” to require that the microfibers of the acoustical insulation be thermally stable for at least 10 days at 135° C. [And] the intrinsic evidence clearly supports the use of temperature to test the thermal stability of the insulation and that a skilled artisan would understand that when testing thermal stability, all variables other than time or temperature must be adequately controlled.

(*Id.* at 38 (emphasis added).) As to the method used to test thermal stability, the Court concluded that “a skilled artisan would understand that such a test could be conducted by placing a sample in an oven at 135° C for 10 days, and by also minimizing the effect of air flow.” (*Id.* at 41 (emphasis added).) In so holding, the Court rejected Defendants’ proposed construction that would have required samples to be exposed to the flow of air in a forced air or convection oven by being placed on the rack, on an open, uncovered tray, or by hanging in the oven. (*Id.* at 36, 38-39.) The Court also concluded that a testing method that places samples directly on the rack of a convection oven was not a valid method because it did not minimize airflow. (*Id.* at 40.)

“Once a district court has construed the relevant claim terms, and unless altered by the district court, then that legal determination governs for purposes of trial. No party may contradict the court’s construction to a jury.” *Exergen Corp. v. Wal-Mart Stores, Inc.*, 575 F.3d 1312, 1321 (Fed. Cir. 2009). Based on the Court’s rulings in the *Markman* Order, to validly heat age test the samples, the effect of airflow must be minimized. There is ample evidence in the record that the “dome” test method adequately minimizes airflow and is consistent with the *Markman* Order. Moreover, there is evidence that while airflow is minimized in the dome, it does not create a sealed environment. (*See, e.g., Dalton Decl.* ¶ 21, Ex. 19 (“Osswald Dep. II”) at 210-14, 255.) Further, there is evidence that 3M has been using the “dome” method internally since 1999 to evaluate its own acoustic insulation products. Based on this and other evidence in the record, the Court concludes that the “dome” test is sufficiently reliable so as to be admissible.

Defendants’ argument that the inventors used an “open tray” test does not alter the Court’s decision. There is nothing in the intrinsic evidence of the ’375 Patent that specifies a particular test method to be used. The Court will not read that limitation into the claim language and notes that it previously rejected similar arguments. In addition, Dr. Swan, an inventor, testified that when tray tests were conducted, steps were taken to minimize air flow, and that placing samples on a tray would only be acceptable if air flow were minimized. (*Dalton Decl.* ¶ 16, Ex. 14 (“Swan Dep.”) at 126-27.) Further, Defendants’ reliance on the Long Report does not provide a basis that would justify modifying the *Markman* Order. Significantly, it appears that many of the opinions proffered in the Long Report consist of extrinsic evidence and are aimed at altering the

Court's claim construction. The Court's construction the "for at least 10 days at 135° C" limitation, however, was based on the intrinsic record. (*Markman* Order at 36-41.)¹⁰

3M's evidence also disputes Defendants' remaining arguments challenging the reliability of the "dome" test, such as the alleged presence of uncontrolled variables. For example, Osswald testified that the "dome" method adequately controls for temperature, oxygen, off-gasses, and other variables. (Osswald Dep. at 38-40, 85-87, 91-92.) The Court concludes that the competing testimony regarding the introduction of variables will be a topic for cross-examination and is not an appropriate basis for exclusion.

2. Opinions Based on Indirect Evidence

Defendants also seek to preclude Osswald from relying on certain indirect evidence that the Accused Products are thermally stable for at least 10 days at 135° C. In particular, Defendants take issue with Osswald's opinion that the thermal stability limitation of "at least 10 days at 135° C" "reasonably corresponds to the approximate thermal history for an average automobile lifetime," as well as Osswald's conclusion that because the Accused Products are intended to last the life of a vehicle, they must also be "thermally stable for at least 10 days at 135° C." (Osswald Infringement Report ¶ 41.) Alternatively, Defendants argue that Osswald's opinions lack scientific basis and industry acceptance.

3M maintains that Osswald is entitled to rely on indirect evidence that the Accused Products are "thermally stable for at least 10 days at 135° C." 3M contends that

¹⁰ 3M maintains that the Long Report was untimely and reserves the right to move to exclude the opinions contained therein at trial.

there is evidence that the durability of the Accused Products directly correlates with their thermal stability. This evidence includes testimony of Defendants' expert, Dr. Stephen Spiegelberg, who explained that "[t]he purpose of an accelerated aging (or 'thermal stability') test is to model the long-term aging of a material in a reasonable time frame" (Wright Decl. ¶ 23, Ex. U ("Spiegelberg Rebuttal Decl.") ¶ 69), and a witness from Ford Motor Company who explained that he understood heat age testing was meant to simulate the life of a vehicle and agreed that heat age testing is meant to determine that a component lasts the life a vehicle (Wright Decl. ¶ 38, Ex. JJ ("Williams Dep.") at 81). 3M also points to evidence that MNW promotes or markets the durability of the Accused Products by, for example, touting "improved fiber durability that insures acoustical performance for the life of the vehicle" and advertising that Sonozorb's "fibers are also more durable than some competing meltblown products," meaning that "they last longer in the application of shelf life." (Dalton Decl. ¶ 85, Ex. 83 ("Miller Dep.") at 175-77; Wright Decl. ¶ 54, Ex. ZZ; Griffin Dep. at 34-35.)

"Direct infringement can be proven by circumstantial evidence." *See Vita-Mix Corp. v. Basic Holding, Inc.*, 581 F.3d 1317, 1326 (Fed. Cir. 2009). 3M has pointed to sufficient evidence that the durability of the Accused Products correlates with their thermal stability. While this evidence is not exactly linked to expected vehicle life span, there is sufficient basis to support the existence of a correlation. In particular, the language of the '375 Patent provides that the "135° C for at least 10 days" limitation "reasonably corresponds to an accelerated version of an approximate thermal history for an average automobile lifetime." ('375 Patent at c. 7, ll: 36-38.) Here, the Court

concludes that there is a sufficient basis for Osswald to properly rely on this indirect evidence of thermal stability to form an opinion linking “durability” to “135° C for at least 10 days.” Therefore, Osswald’s opinions based on the durability of the Accused Products are admissible.

B. Osswald and Beckham

In order to prove infringement of the ’375 Patent, 3M must establish that the Accused Products have “a pressure drop of at least about 1 mm water at a flow rate of about 32 liters/min.”¹¹ 3M attempts to prove infringement of the “pressure drop” limitation through both direct and indirect evidence introduced through the opinions of Osswald, including pressure drop testing conducted by Dr. Haskell W. Beckham (“Beckham”) of Exponent, Inc. (“Exponent”). (*See generally* Doc. No. 210 (“Beckham Decl.”).) The opinions on “pressure drop” are based on testing conducted by Beckham at 3M’s Prairie du Chien, Wisconsin plant (the “Exponent Prairie du Chien Test”) and pre-litigation testing conducted internally by 3M. 3M contends that Osswald’s opinions are also consistent with pre-litigation testing conducted by MNW. (Osswald Infringement Report ¶ 112.) 3M submits that the results of all three tests (Exponent’s testing, 3M’s internal testing, and MNW’s testing) are admissible and demonstrate that the Accused Products have a pressure drop that exceeds 1 mm of water.

¹¹ “Pressure drop” is related to the amount of force per unit area required for a volume of air to pass through a given sample in a given period of time. The greater the pressure drop, the more force is required to pass through a sample, which correlates with greater sound attenuation. (*See* Osswald Infringement Report ¶ 40.)

Defendants move to preclude opinions that the Accused Products infringe the '375 Patent based on these pressure drop tests. Defendants also seek to exclude Beckham's effective fiber diameter ("EFD") calculations based on the pressure drop tests and to preclude Osswald from relying on certain indirect evidence of pressure drop. 3M contends that Defendants' attack on the reliability of Beckham's pressure drop testing lacks merit and does not warrant exclusion.

1. Pressure Drop Testing

a. Beckham's Exponent Prairie du Chien Pressure Drop Testing

Beckham performed pressure drop testing at 3M's Prairie du Chien plant, where 3M's TAI is manufactured. (Dalton Decl. ¶ 68, Ex. 66 ("Exponent Report") at 14-16; *id.*, ¶ 79, Ex. 77 at 7.) Beckham tested six grades of Sonozorb that resulted in pressure drop measurements of between 4.5 and 19.5 mm of water at a face velocity of 5.33 cm/second. (Exponent Report at 15-16.) Because Exponent's labs did not have the proper equipment to conduct the tests under ASTM F778-88, Beckham conducted the testing on 3M's equipment. (Dalton Decl. ¶ 40, Ex. 38.)

i. Method A of ASTM F778-88

Defendants challenge the validity of Beckham's use of Method A from ASTM F778-88, the "Standard Methods for Gas Flow Resistance Testing of Filtration Media," when testing pressure drop. Specifically, Defendants argue that Beckham's testing did not comply with Method A of ASTM F778-88 because he did not test for edge leakage or clamping deformation, and absent such testing, there cannot be a known rate of error.

In the *Markman* Order, the Court found that “pressure drop” should be measured at 32 liters/minute using Method A from ASTM F778-88, which describes a method of measuring pressure drop across a specimen of known geometry by forcing air across a specimen, and a face area of 100 cm², which results in a face velocity of 5.33 cm/second. (*Markman* Order at 18, 20-21.) Further, the Court explained that ASTM F778-88 describes two methods to measure air flow resistance—Method A and Method B:

Method A is a “general method applicable to all filtration media and forms of media.” ([ASTM F778-88] § 4.4.1.) Method B is a “limited method” used only when sheets of material to be tested “either edge leak or substantially deform when using the simple clamping approaches of Method A.” (*Id.* § 4.4.2.)

(*Id.* at 18.)

During the *Markman* proceedings, Defendants argued that a person of ordinary skill would have understood that a claimed acoustical insulation web would be prone to edge leakage and would deform using the clamping techniques and would, therefore, likely be required to use Method B. (*Markman* Order at 19; *see also* Doc. No. 116 (Hearing Tr.) at 255-59 (arguing that Method A does not apply if there is edge leakage or deformation, and that one “is supposed to demonstrate the absence of edge leakage or deformation”). In the context of indefiniteness, the Court rejected Defendants’ arguments:

The Court finds that a skilled artisan would have known to use Method A. ASTM F 778-88 provides that Method A is a “general method applicable to all filtration media and forms of media” and thus operates as a default method. Nothing in the ’375 Patent indicates that Method B should be used instead of Method A. Moreover, 3M has submitted compelling evidence that the microfiber web of the ’375 Patent would not otherwise require the use of Method B because neither leakage nor substantial deformation are an

issue when measuring acoustical insulation of the '375 Patent. In particular, 3M submits that the '375 Patent is directed to a polypropylene web that has an extremely low density and extremely small fibers when the web is at least .5 centimeters thick, and that a skilled artisan would know that these characteristics would be light and supple and would not have edge leak or deformation when tested using the clamping method of Method A.

(*Markman* Order at 19.) The Court further concluded that:

[A] skilled artisan would have known that the melt-blown polypropylene microfiber web of the '375 Patent is a “blanket-like” material. . . . [And b]ecause a skilled artisan would have known that the polypropylene microfiber web of the '375 Patent is “blanket-like” material, that skilled artisan would also have known to use the face area of 100 cm² for blanket-like materials. This would allow a skilled artisan to calculate face velocity and therefore measure pressure drop with reasonable certainty.

(*Id.* at 21.)

After the Court issued the *Markman* Order, Defendants commissioned Blue Heaven Technologies, an independent lab, to conduct pressure drop testing. Defendants explain that the Blue Heaven tests measured the pressure drops of the Accused Products using two methods: (1) a simple clamping technique consistent with Method A; and (2) the clamping technique designed to test for edge leakage and/or deformation and prescribed in ASTM F778-88. (Dalton Decl. ¶ 19, Ex. 17 (“Spiegelberg Report”) ¶¶ 46-49.) Blue Heaven used a flow rate of 32 liters/minute and a face area of 100 cm². (*Id.* ¶ 47.) Defendants submit that the test results reveal that the pressure drops of all but two grades of the Accused Product were significantly lower when clamped according to the second method (edge leakage) than the simple Method A clamping technique. (*Id.* ¶ 49, Table 1.) Defendants argue that this difference demonstrates that the compression of the sample affects the pressure drop when the pressure drop was measured using Method A,

and in particular, that compression of a Sonozorb sample would lead to increased density, and increased density would yield a higher pressure drop. Further, Defendants contend that, given the leakage and/or deformation caused by Method A, they commissioned pressure drop measurements using Method B, based on which the Accused Products did not infringe. As a result of this testing, Defendants argue that Beckham's pressure drop testing is unreliable because it did not measure for edge leakage/deformation.

The Court finds Defendants' arguments challenging the validity of Beckham's use of Method A to run counter to the Court's claim construction. As explained above, the Court previously construed the pressure drop limitation so as to allow for the use of Method A. (*Markman* Order at 19-21.) In fact, the Court specifically declined to adopt Defendants' arguments on edge leakage/deformation. Thus, Defendants cannot now contest Beckham's use of Method A as unreliable. In addition, Defendants' reliance on their Blue Heaven testing to challenge the reliability of the Exponent Prairie du Chien Pressure Drop Testing in a *Daubert* motion is unavailing. The Blue Heaven and Prairie du Chien tests were conducted in different facilities, with different equipment, and in particular, using different clamping methods. Defendants do not point to evidence that the Prairie du Chien testing suffered edge leakage or deformation. Indeed, Beckham offered testimony that the Prairie du Chien pressure drop test is designed to reduce edge leakage and that the testing equipment does not result in edge leakage. (*See Dalton Decl.* ¶ 40, Ex. 38 ("Beckham Dep.") at 170-75.)

Based on the above, the Court concludes that Beckman's use of Method A is sufficiently reliable so as to be admissible. Defendants can challenge the weight of Beckham's opinions at trial.

ii. Flow Rate Control

Defendants also assert that the Prairie du Chien pressure drop test is unreliable for failure to control the flow rate. Defendants point to evidence that Beckham was unfamiliar with 3M's equipment and was only instructed how to use the equipment immediately before running the tests. Due to his lack of familiarity, Defendants submit that Beckham did not know how the equipment was calibrated or whether 3M ever independently measured the flow rate to confirm that the pressure used corresponded to a flow rate of 32 liters/minute. Defendants submit that Beckham relied on an internal 3M test protocol and did not confirm the proper pressure drop. In addition, Defendants claim that, even if the equipment was calibrated properly to provide the required flow rate, Beckham did not use the orifice (or calibration) plate properly to control the flow rate used for the pressure drop measurement.¹² Defendants assert that Beckham removed the orifice/calibration plate, which is used to establish a desired air flow rate, before loading the nonwoven web sample, thereby allowing the air to flow at a higher rate, and that he did not re-measure the flow rate after the sample was placed. Thus, Defendants claim

¹² An orifice plate is a thin plate with a hole in it used as a type of differential pressure meter. (Dalton Decl. ¶ 67, Ex. 65 ("Spiegelberg Decl.") ¶¶ 25-26.) It can be placed in a pipe to measure the flow rate. (*Id.* ¶ 25.)

Beckham tested the Accused Products at an unknown, uncontrolled, and elevated air flow rate.

Defendants submit that under *Daubert*, Beckham's failure to control the flow rate renders his pressure drop measurements unreliable. Specifically, Defendants contend that the record contains no test data showing that a pressure drop measurement can be taken at a desired flow rate by establishing the desired flow rate through an orifice (calibration) plate and removing the orifice plate prior to the pressure drop measurement. Further, Defendants point out that Beckham has not identified any peer reviewed publications or other evidence of general acceptance relating to his method of controlling flow rate for a pressure drop measurement.

3M argues that Spiegelberg's assertions regarding the flow rate at the Prairie du Chien plant are speculation.¹³ 3M points out that Spiegelberg did not accompany Defendants' attorneys when they inspected the facility and did not review the video of the inspection before offering opinions in his July and August 2015 expert reports. (Spiegelberg Dep. at 140.) 3M asserts that Spiegelberg offers opinions that are based on how he thinks the 3M pressure drop tester works, but makes at least two mistaken assumptions that lead him to erroneous conclusions. For example, 3M argues that Spiegelberg mistook 3M's "standard plate" (the calibration plate used by 3M to set airflow rate at about 32 liters/minute) for an "orifice plate" (used for measuring flow

¹³ 3M also argues that Spiegelberg's November 23, 2015, declaration was untimely and reserves the right to seek exclusion of the opinions expressed therein at trial.

rate), and that the 3M pressure drop tester is for an upstream-pressure-controlled system, rather than an upstream-flow-controlled system. (Beckham Decl. ¶¶ 13-24.)

Beckham explained that he calibrated the 3M pressure drop tester by using a “calibrated porous metal plate” (the “standard plate”) that was inserted in the specimen location of the pressure drop tester. (*Id.* ¶ 17.)¹⁴ Beckham also explained that the “standard plate” is not an “orifice plate” used to measure the air flow rate, but rather it allows calibration of the air flow rate by monitoring the pressure drop because the relationship between the air flow rate and pressure drop is known for the “standard plate.” (*Id.* ¶¶ 17, 21.) Beckham explained that he used the “standard plate” to set and calibrate the air flow to 32.8 liters/minute to ensure a face velocity of 5.33 cm/second on the 102.6 cm² face area using a black knob at the bottom of the flow meter, and then removed the “standard plate” before testing the specimens. (*Id.* ¶¶ 18-19.) Beckham did not adjust the air-flow controller during testing so the air flow striking the specimen would be maintained at the calibrated level. (*Id.* ¶ 18.) Beckham would then use the “standard plate” to check air flow after testing and re-calibrate if necessary. (*Id.*)¹⁵

3M also maintains that Beckham properly relied on 3M’s calibration of the Prairie du Chien pressure drop tester. The record demonstrates that 3M’s metrology group regularly calibrates the 3M pressure drop tester. (Krieg Dep. at 343; Beckham Dep. at

¹⁴ The purpose of the “standard” or “calibration” plate “is to make sure that the air flow rate is calibrated.” (Beckham Dep. at 165.)

¹⁵ Defendants maintain that regardless of what 3M calls the relevant plates during testing, the test method led to improper control of the flow rate. (Doc. No. 220 (“Dalton Decl. II”) ¶ 3, Ex. 114 (“Spiegelberg Rebuttal Decl.”) at 32.)

140-50; Ex. 66 at App. C, DSC06672.) In addition, Beckham referenced calibration stickers for the 3M pressure drop tester in his report. (Report at App. C, DSC06672.) 3M submits evidence that those in the field rely on calibrations of pressure drop testers performed by others.

The Court concludes that Defendants' arguments with respect to the Exponent Prairie du Chien testing do not provide a basis for the exclusion of opinions based on that testing. Beckham's reliance on 3M's calibration of the 3M pressure drop tester does not render the Prairie du Chien Exponent test results inadmissible. Beckham is permitted to rely on facts that he "has been made aware of . . . [if] experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion." Fed. R. Evid. 703. This can include calibrations performed by qualified persons. *See, e.g., Ratliff v. Schiber Truck Co.*, 150 F.3d 949, 955 (8th Cir. 1998); *see also Monsanto Co. v. David*, 516 F.3d 1009, 1015 (Fed. Cir. 2008) ("[N]umerous courts have held that reliance on scientific test results prepared by others may constitute the type of evidence that is reasonably relied upon by experts for purposes of Rule of Evidence 703."). The record contains evidence that the tester was regularly calibrated, and Beckham's report contains calibration stickers noting the calibrations.

In addition, Defendants' arguments based on a lack of "known error rate" or general acceptance or peer review of 3M's pressure drop tester and corresponding method are not persuasive. The test of reliability of expert testimony is flexible, and the Court need not consider each and every *Daubert* factor. *Kumho*, 52 U.S. at 141; *Icon-IP Pty, Ltd. v. Specialized Bicycle Components, Inc.*, 87 F. Supp. 3d 928, 939-40 (N.D. Cal.

2015). Moreover, Defendants' arguments regarding error rate, peer review, and general acceptance are met with conflicting evidence. For example, 3M submits evidence that it has taken steps to verify its pressure drop tester's repeatability and reliability and that it has been using its pressure drop tester for decades. (Krieg Dep. at 114-15, 345; Wright Decl. ¶ 20, Ex. R; Beckham Dep. at 145-45.)

The Court concludes that the parties' experts' competing testimony on the methods used in and results of the Exponent Prairie du Chien tests are appropriately addressed at trial on cross-examination.

b. 3M Pressure Drop Test

Before filing the present lawsuit, 3M measured the pressure drop of Sonozorb samples obtained from a Ford Edge liftgate trim panel (the "3M Pressure Drop Test"). (Dalton Decl. ¶ 34, Ex. 32.) The testing was conducted using the ASTM C522 method at 32 liters/minute and using a 100 cm² face area, resulting in a face velocity of 5.33 cm/second. (*Id.* at 3M00057797-98.) The tests revealed a pressure drop between 2.72 and 2.83 mm of water. (*Id.*) Defendants argue that the methodology used in the 3M Pressure Drop Test was unreliable for determining whether the Accused Products have the claimed pressure drop because: (1) the pressure drop measurements were conducted according to ASTM C522 instead of ASTM F778-88; and (2) the pressure drop was measured with the scrim layers on the samples.

i. ASTM C522

3M conducted pressure drop testing of Sonozorb according to ASTM C522, instead of ASTM F778-88. Defendants seek to exclude this testing because it is

inconsistent with the Court's *Markman* Order, which endorsed the use of ASTM F778-88. In addition, Defendants point out that Osswald testified that he would not commission testing under ASTM C522 to determine whether SonozorB infringes the '375 Patent. (Osswald Dep. at 357-58.) Accordingly, Defendants assert that the test is unreliable.

3M argues that the fact that Osswald would not currently commission testing under ASTM C522 only demonstrates that Osswald would comply with the *Markman* Order. However, 3M points out that the ASTM C522 testing was conducted before litigation and argues that the ASTM C522 test is "true to the essence of the Court's claim construction because it used a face velocity of 5.33 cm/second based on a flow rate of 32 liters/minute and a face area of 100 cm²." (Doc. No. 207 at 30 (*citing* Osswald Infringement Report ¶¶ 120-21).) 3M also points out that Osswald opined that while the ASTM C522 test was a different method than ASTM F778-88, "one could have an equivalent" pressure drop if the same face velocity were used. (Osswald Dep. at 357.) 3M argues, therefore, that the ASTM C522 test results constitute evidence of infringement.

Here, Defendants have not demonstrated that the use of the ASTM C522 requires exclusion of the test results. *See MeadWestVaco Corp. v. Rexam Beauty & Closures, Inc.*, 731 F.3d 1258, 1269 (Fed. Cir. 2013) (finding that expert's use of slightly different test parameters did not render testimony irrelevant). Osswald explained that the ASTM C522 results could be equivalent because they used the same face velocity, flow rate, and

face area as those specified in the *Markman* Order. Defendants can challenge the weight and basis of Osswald's opinions based on these test results on cross-examination.

ii. Scrim

The 3M Pressure Drop Test was conducted on samples containing a layer of scrim. (Osswald Dep. at 355.) The “melt-blown polypropylene microfiber web” referenced in the relevant claim language of the '375 Patent does not include the scrim layer. (Spiegelberg Rebuttal Report ¶ 43.) Defendants argue that the pressure drop measurements in these samples would have been substantially lower if the tests were conducted on samples without scrim. (*Id.*) Defendants argue further that the methodology of the 3M Pressure Drop Test was therefore unreliable and should be excluded.

3M does not dispute that the tested samples contained scrim, but submits that Defendants have not shown that the removal of the scrim would have resulted in a pressure drop of less than 1 mm of water. 3M also disputes that the scrim would affect the measured pressure drop, pointing out that Osswald opined that the scrim would change the pressure drop “a very small amount” and Beckham opined that the scrim could cause “either no increase or some increase that's insignificant.” (Osswald Dep. at 356; Beckham Dep. at 155.)

Here, the parties' experts' difference of opinion regarding the effect of the scrim on the Accused Products' pressure drop is a topic for cross-examination. The existence of scrim on the samples, alone, is not a ground for exclusion of 3M's testing. *See, e.g., Huggins v. Stryker Corp.*, 932 F. Supp. 2d 972, 993 (D. Minn. 2013) (“[A] difference of

opinion regarding an expert's conclusions is usually a topic for cross-examination and competing testimony, not a reason to exclude testimony.”).

c. MNW Tests

Defendants also seek to exclude MNW's pre-litigation pressure drop testing because: (1) the pressure drop testing was not conducted according to ASTM F778-88; and (2) the pressure drop testing was not conducted on the Accused Products.

The MNW tests were not conducted according to ASTM F778-88. (Spiegelberg Rebuttal Report ¶ 48). Instead, the testing was conducted using an aerosol combination of sodium chloride particles mixed in air to measure the penetration of the sodium chloride. (*Id.*; Griffin Dep. at 230-231, 233.) Defendants point out that nothing in ASTM F778-88 provides for the use of aerosol particulates during pressure drop measurement.

Moreover, Defendants submit that the MNW tests used non-commercialized samples, not the Accused Products, and that the samples consisted of experimental material intended to have finer fibers, which would have had a higher pressure drop. (*See* Spiegelberg Reb. Report ¶ 46; Griffin Dep. at 227-28.)

3M maintains that MNW's own pre-litigation pressure drop testing is reliable and should be admitted. 3M points to evidence that the use of aerosol particulates is an insignificant deviation from the *Markman* Order. In particular, Osswald explained that he understood that MNW used an aerosol combination of salt particles and air, but that the test results were consistent with Exponent's and 3M's measurements, and that the use of aerosol particles should not have significantly affected the results of MNW's test.

(Osswald Infringement Report ¶¶ 122-24, 126.) 3M argues that there is no evidence that

the use of aerosol particles caused the results of MNW's testing to be over 1 mm of water and points out that Defendants only submit evidence that such aerosols "can" affect pressure drop. (Spiegelberg Rebuttal Report ¶ 48.) Moreover, 3M argues that the smaller fiber size of the experimental Sonozorb product would not significantly affect the results for purposes of an infringement analysis. (Osswald Infringement Report ¶ 126.)

While MNW's pre-litigation testing of its own samples used a different method, 3M has submitted evidence that the deviations in testing techniques are not material. In addition, while the samples tested were experimental and used smaller fiber size than the commercialized Sonozorb, there are competing opinions as to whether the smaller fiber diameters would significantly affect the test results. The Court concludes that the competing testimony is more appropriately addressed during cross-examination. The Court therefore declines to exclude the evidence.

2. Indirect Evidence

Osswald also offers opinions that the Accused Products must have a pressure drop of at least 1 mm of water based on evidence of: (1) the thickness, density, and fiber diameter of Sonozorb; and (2) Defendants' marketing claims as to the acoustical performance of Sonozorb. (Osswald Validity Report ¶¶ 389-90.) Defendants argue that these opinions constitute speculation, are based on insufficient facts, and should not be admitted.

Osswald contends that "a melt-blown polypropylene microfiber acoustical insulation having the thickness, density, a[nd] fiber diameter of Sonozorb will inherently have [the claimed] pressure drop." (*Id.* ¶ 389.) Defendants assert that this opinion

appears to be based on an assumption that Defendants have conceded that the Accused Products have densities, thicknesses, and EFDs within the claimed ranges, but that Defendants have not made that concession.

In his expert report, Osswald explained: “[T]he pressure drop through a melt-blown polypropylene or polypropylene blend microfiber web (*e.g.*, Sonozorb) is based on variables such as the thickness of the material, the fiber diameter, and the density of the material, and is an inherent property of the material itself. Indeed, it is this property that corresponds with the sound insulating properties of the material.” (Osswald Infringement Report ¶ 114.) In addition, 3M has pointed to record evidence linking the claimed pressure drop to acoustic performance. (*Id.*; Thompson, Jr. Dep. at 73; Spiegelberg Dep. at 144-45 (acknowledging that pressure drop is one metric used to characterize ability to attenuate sound); Lickfield Dep. at 313-314; Dalton Decl. ¶ 60, Ex. 58 (“Graber Dep.”) at 347-349.) This evidence provides a sufficient basis for Osswald to reliably rely on Sonozorb’s density, thickness, weight, and fiber diameter and claims of acoustic equivalence to support his opinions on pressure drop. Defendants can cross-examine Osswald on the basis for his opinions. In addition, this evidence is sufficient to support Osswald’s opinion insofar as Osswald relies on Defendants’ marketing claims regarding acoustical performance. To the extent that Defendants challenge the assumptions upon which Osswald relies as a basis for asserting that pressure drop over 1 mm of water is required to achieve acoustical performance consistent with Defendants’ marketing claims, Osswald’s assumptions can be explored and challenged on cross-examination.

3. Beckham's Opinions on EFD

Defendants also seek to exclude Osswald and Beckham's opinions as to EFD as unreliable. Claim 1 contains the EFD limitation: "a melt-blown polypropylene microfiber web having an average effective fiber diameter of less than about 15 microns." Thus, this limitation is met if EFD is less than 15 microns.

Defendants submit that in his infringement analysis, Beckham calculated the EFD of the Accused Products using the results of the Exponent Prairie du Chien pressure drop test, and that Osswald relied on Beckham's calculations in forming his opinion that the Accused Products have EFDs within the claimed range. (Osswald Infringement Report ¶¶ 92-93.) Defendants further claim that opinions based on the Exponent Prairie du Chien Pressure Drop results are unreliable because the tests were not conducted using reliable methods. The Court, however, has already declined to exclude the results of the Exponent Prairie du Chien pressure drop test. Therefore, the Court concludes that Beckham's EFD calculations based on those tests are admissible.

In addition, Defendants seek to exclude Osswald's opinions on EFD insofar as they are based on actual fiber diameters. In his report, Osswald offers his opinion that the Accused Products have EFD within the claimed range. (Osswald Infringement Report ¶¶ 91, 94-96.) However, Defendants contend that the fiber diameters to which Osswald refers are *actual* not *effective* fiber diameters, and that the effective fiber diameter of a fibrous material is generally greater than actual fiber diameter. Defendants also assert that this difference makes Osswald's analysis unreliable. 3M however, points to

evidence in the record that EFD and a microscopically measured fiber diameter can be considered equivalent. (Thompson, Jr. Dep. at 66, 195.)

The Court concludes that Defendants' challenge to the opinions of EDF goes to the credibility of the testimony, not the admissibility. Therefore, Defendants can challenge Osswald's testimony on cross-examination.

C. Damages Expert

Defendants also move to preclude Donald Gorowsky, 3M's damages expert, from offering opinions on damages. Defendants do not question Gorowsky's credentials, but rather they assert that Gorowsky's lost profits and reasonable royalty methodologies are unreliable.

1. Lost Profits

In general, to "recover lost profits, the patent owner must show 'causation in fact,' establishing that 'but for' the infringement, he would have made additional profits." *Grain Processing Corp. v. Am. Maize-Products Co.*, 185 F.3d 1341, 1349 (Fed. Cir. 1999). "In proving his damages, the patent owner's burden of proof is not an absolute one, but rather a burden of reasonable probability." *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1065 (Fed. Cir. 1983). "The patentee is not obliged to negate every possibility that a purchaser might not have bought the patentee's product instead of the infringing one, or might have foregone the purchase altogether." *Del Mar Avionics, Inc. v. Quinton Instrument Co.*, 836 F.2d 1320, 1326 (Fed. Cir. 1987). *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152 (6th Cir. 1978) articulated a non-exclusive, four-factor test for lost profits, under which a patentee must show: (1) demand

for the patented product; (2) absence of acceptable non-infringing substitutes; (3) manufacturing and marketing capability to exploit the demand; and (4) the amount of profit that would have been made. *Panduit*, 575 F.2d at 1156. In addition, one can examine “but for” causation using the two-supplier market method demonstrated in *Lam*, 718 F.2d at 1056, or the market share method outlined in *State Indus. v. Mor-Flo Indus.*, 883 F.2d 1573, 1577-79, 1580 (Fed. Cir. 1989).

In his report, Gorowsky analyzed all four *Panduit* factors. First, Gorowsky found evidence of demand (and, more specifically, growing demand) for the patented product. Gorowsky points to evidence of sales of products that use the patented technology, namely, 3M’s TAI product, as well as Defendants’ Sonozorb non-woven polypropylene acoustic insulation. (*See* Doc. No. 193 (“Dalton Decl.”) ¶ 76, Ex. 74 (“Gorowsky Report”) at 31-37.) In addition, Gorowsky looked at Defendants’ development of the Accused Products and promotion of Sonozorb’s key features enabled by the ’375 Patent (acoustic performance, light weight, and improved fiber durability) as evidence of demand.

Second, Gorowsky analyzed products in the relevant market regarding acceptable non-infringing alternatives and 3M’s market share before concluding that 3M satisfies the second prong of the *Panduit* test. Gorowsky explained that because only 3M and Defendants make polypropylene acoustic insulation products that provide the combination of features demanded by consumers (superior acoustic performance, low weight, and a resistance to degradation), no acceptable non-infringing alternatives exist

(with the only possible exception being AIM's AutoZorb product).¹⁶ (*Id.* at 37-45.)

Gorowsky concluded that the market for the patented advantages provided by the '375 Patent was essentially a two-supplier market. Accordingly, Gorowsky opined that 3M would be entitled to claim 100% of Defendants' infringing sales. (*Id.* at 45.)

Third, Gorowsky concluded that 3M's manufacturing and marketing capacity would be sufficient to meet the needs associated with absorbing Defendants' sales. (*Id.* at 45-49.) Specifically, Gorowsky considered testimony from 3M's marketing and manufacturing executives that 3M could fully use currently underutilized U.S. manufacturing capability, as well as accelerate operational start-dates on already-planned U.S. based capacity increases, to meet the additional needs associated with Defendants' sales. (*Id.*) In addition, Gorowsky opined that 3M had relationships and marketing capacity to make at least its market share portion of Defendants' allegedly infringing sales. (*Id.* 48-49.)

Fourth, Gorowsky calculated the amount of profits that 3M would have made from Defendants' sales. In support of his calculations, Gorowsky relied on Defendants' sales and financial data and performed an analysis by: (1) determining MNW's infringing

¹⁶ As to the AutoZorb product, Gorowsky determined that AutoZorb has a problem with degradation and thus should not be considered an acceptable substitute. (Gorowsky Report at 41-42.) Even so, Gorowsky assigned AIM a 10% share of the market in a "but-for" scenario. (*Id.* at 44.) Based on the market-share analysis, and accounting for AIM's 10%, Gorowsky opined that 3M's relative market share, with Defendants' allegedly infringing sales factored out, is approximately 81%. (*Id.* at 45.) However, Gorowsky also explained that AIM's AutoZorb is inferior to 3M's TAI and Defendants' Sonozorb products, and thus not acceptable an acceptable alternative. (*Id.*) In this scenario, Gorowsky calculated lost-profits in a two-supplier market.

sales through the expiration of the '375 Patent;¹⁷ (2) determining the portion of sales 3M would have made “but for” Defendants’ alleged infringement; (3) adjusting the portion of sales that that 3M would have made to account for 3M’s higher selling price; (4) determining 3M’s incremental profit margin; and (5) calculating 3M’s lost profits. (*Id.* at 45-49, 50-66.)

Defendants assert that Gorowsky’s lost profit opinion should be excluded for four primary reasons. First, Defendants contend that Gorowsky’s analysis of demand for the patented product is unreliable because: (1) the analysis of market demand for polypropylene-based acoustic insulation is not a reliable method of determining the existence of demand for the specific patented product (a thermally stable meltblown polypropylene microfiber acoustical insulation web having “a thermal stabilizer or antioxidant” that is “uniformly distributed throughout the microfibers such that the microfibers are thermally stable for at least 10 days at 135° C”); and (2) the analysis of TAI and Sonozorb sales does not ascertain whether there is a demand for 3M’s patented product among Defendants’ customers. Defendants argue that 3M’s sales do not demonstrate a demand for the patented product, and that Defendants’ sales of Sonozorb do not demonstrate demand for the patented product because 3M and Defendants sell different acoustical insulation at different prices to different customers, and because there is no evidence that Defendants’ customers would transfer their demand to 3M’s TAI. In

¹⁷ In analyzing MNW’s infringing sales, Gorowsky determined that the sales were subject to accelerated reentry damages (“ARD”) under *BIC Leisure Products, Inc. v. Windsurfing International, Inc.*, 687 F. Supp. 134 (S.D.N.Y. 1988).

addition, Defendants submit that Gorowsky's analysis of the marketing and selling efforts employed by 3M and Defendants is flawed in several ways, primarily because Gorowsky assumed that a polypropylene acoustical insulation product cannot last the life a vehicle unless it also has the patented level of thermal stability.

Second, Defendants assert that Gorowsky's analysis of non-infringing alternatives is unreliable. In part, Defendants take issue with the contention that pre-2012 Sonozorb is not an acceptable non-infringing alternative for the patented product. Defendants claim that pre-2012 Sonozorb was available during the damages period and that it was a non-infringing substitute. In this vein, Defendants assert that Gorowsky failed to investigate whether purchasers demand the "advantages" associated with the patent. Defendants also assert that Gorowsky failed to consider additional acceptable non-infringing substitutes. By extension, Defendants submit that the existence of additional non-infringing substitutes would have affected both approaches (market share and two-supplier) used by Gorowsky to calculate the sales that 3M allegedly would have made "but-for" Defendants' alleged infringement.

Third, Defendants contend that Gorowsky's analysis of 3M's manufacturing capability is flawed, specifically because the analysis ignores shipping costs associated with overseas manufacturing and did not quantify additional available capacity. Fourth, Defendants assert that Gorowsky's calculation of lost profits is unreliable because it includes sales that 3M would not have made "but for" the alleged infringement. Defendants take issue with Gorowsky's application of the ARD theory, wherein Gorowsky submits that 3M is entitled to lost profits based on Defendants' sales after the

expiration of the '375 Patent that 3M would have made “but for” Defendants’ infringement that occurred before the expiration of the patent. Specifically, Defendants challenge the inclusion of certain of Defendants’ sales that were made after 3M filed this lawsuit, but were based on Defendants’ selection to supply a program for four years, where the four year period extends beyond the term of the patent.

Gorowsky proposes to offer testimony on lost profits to assist the jury. In calculating lost profits, Gorowsky used accepted methods and principles. In particular, he used the two-supplier market method, the market share method, and followed the *Panduit* lost profits test. The Court concludes that all of Defendants’ arguments challenging Gorowsky’s analysis of lost profits are appropriately pursued both through its own damages expert and by cross-examining Gorowsky. These arguments do not provide a basis to disqualify Gorowsky from testifying.

2. Reasonable Royalty Rate

Gorowsky opined that, at a minimum, 3M is entitled to a reasonable royalty based on a hypothetical negotiation. A reasonable royalty rate may compensate a patent holder for infringing sales. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009). “A ‘reasonable royalty’ derives from a hypothetical negotiation between the patentee and the infringer when the infringement began.” *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 868-69 (Fed. Cir. 2010). An expert may use the multi-factored framework set forth in *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y.1970), to evaluate and determine a reasonable royalty. *Id.* An expert’s royalty rate analysis must be carefully tied to the claimed invention itself. *Id.* Gorowsky

used the *Georgia-Pacific* methodology and concluded that the parties would have agreed on a “running royalty” of at least 8% of MNW’s sales and a lump-sum for other infringing acts. (Gorowsky Report at 67-100.)

Defendants disagree with Gorowsky’s analysis on three fronts. First, Defendants contend that rather than tying the reasonable royalty rate analysis to the claimed invention, Gorowsky based his analysis on 3M research and development expenditures unrelated to the claimed invention, and in particular research and development costs incurred between the years 2010-2014. (*Id.* at 92-95.) Defendants assert that these expenditures have nothing to do with the claimed invention of the ’375 Patent, which was filed in 1996. Second, Defendants contend that Gorowsky’s analysis does not tie the 8% royalty to the claimed invention, and that Gorowsky does not attempt to value the claimed invention. Defendants claim that the evidence, instead, shows that customers do not place any value on the claimed uniform antioxidant and level of thermal stability. Third, Defendants claim that Gorowsky’s reasonable royalty analysis improperly provides for royalties on sales made after the expiration of the patent.

3M argues that Defendants’ challenges to Gorowsky’s reasonable royalty analysis focus on factual disputes and conclusions, not methodology. In addition, 3M submits that the inclusion of research and development costs, as well as a consideration of an infringer’s research and development savings, is appropriate. Further, 3M maintains that Gorowsky’s hypothetical negotiation does not call for a license for the payment of royalties for sales made post-expiration, but rather it imposes royalties for supplier commitments entered into during the life of the patent.

Here, the Court agrees that Defendants' challenge to the reasonable royalty analysis is factual and goes to the weight that should be afforded Gorowsky's testimony. Moreover, the Court notes that Gorowsky's hypothetical negotiation is not prohibited by *Kimble v. Marvel Entm't, LLC*, 135 S. Ct. 2401, 2407 (2015). In *Kimble*, the Supreme Court declined to overrule *Brulotte v. Thys Co.*, 379 U.S. 29 (1964), and found payments on post-expiration sales to be unlawful. *Kimble*, 135 S. Ct. at 2414. In *Brulotte*, the Supreme Court held that a license agreement amounted to "patent misuse" where it allowed for the collection of royalties that accrued after a patent's expiration. *Brulotte*, 379 U.S. at 30. Here, however, Gorowsky does not propose that 3M collect royalties for the use of patented technology that accrued after the expiration of the '375 Patent. Instead, Gorowsky's hypothetical negotiation accounts for royalties to be paid to 3M for supplier commitments that were entered into during the term of the '375 Patent. This type of patent licensing agreement is not prohibited by *Kimble*, and has been found to be acceptable by other courts. *See Kimble*, 135 S. Ct. at 2407-08 ("*Brulotte* allows a licensee to defer payments for pre-expiration use of a patent into the post-expiration period; all the decision bars are royalties for using an invention after it has moved into the public domain."); *see also, e.g., Bayer AG v. Housey Pharms, Inc.*, 228 F. Supp. 2d 467, 472, 73 (D. Del. 2002) (holding that there was no patent misuse under *Brulotte* where a license requires the payment of royalties after the expiration of a patent for the use of the invention prior to the expiration).

The Court concludes that Gorowsky examined all of the factors under *Georgia-Pacific*. Defendants' objections to Gorowsky's report on reasonable royalty are based on

their contention that Gorowsky has misapplied the facts of this case to the reasonable royalty analysis, and therefore has arrived at the wrong conclusion. To the extent Defendants take issue with Gorowsky's conclusions and analysis, they may challenge him during cross-examination and in the presentation of their own expert.

II. Summary Judgment

Summary judgment is appropriate if there are no genuine issues of material fact and the moving party can demonstrate that it is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(a). A fact is material if it might affect the outcome of the suit, and a dispute is genuine if the evidence is such that it could lead a reasonable jury to return a verdict for either party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). A court considering a motion for summary judgment must view the facts in the light most favorable to the non-moving party and give that party the benefit of all reasonable inferences to be drawn from those facts. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986). Summary judgment is appropriate if the nonmoving party "fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial." *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986). To defeat a motion for summary judgment, a party may not rest upon allegations, but must set forth specific facts showing that there is a genuine issue for trial. *Anderson*, 477 U.S. at 256.

A. Noninfringement

Direct infringement occurs when someone "without authority makes, uses, offers to sell or sells any patented invention." 35 U.S.C. § 271(a). Determining infringement

requires two steps: (1) the claim must be properly construed to determine its scope and meaning; and (2) the construed claim must be compared to the accused device. *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1332 (Fed. Cir. 2006). “To prove infringement, the patentee must show that the accused device meets each claim limitation either literally or under the doctrine of equivalents.” *Catalina Mktg. Int’l, Inc. v.*

Coolsavings.com, Inc., 289 F.3d 801, 812 (Fed. Cir. 2002) (citation omitted).

Infringement exists only “when each of the claim limitations reads on, or in other words is found in, the accused device.” *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1345 (Fed. Cir. 2002) (internal quotation marks and citation omitted). To find literal infringement, “every limitation set forth in a claim must be found in an accused product, exactly.” *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995).

Defendants argue that they are entitled to summary judgment of noninfringement because the Accused Products do not have: (1) “a nonvolatile thermal stabilizer or antioxidant . . . uniformly distributed throughout the microfibers such that the microfibers are thermally stable for at least 10 days at 135° C”; or (2) “a pressure drop of at least about 1 mm water at a flow rate of about 32 liters/min.” The Court considers each in turn.

1. “a nonvolatile thermal stabilizer or antioxidant . . . uniformly distributed throughout the microfibers such that the microfibers are thermally stable for at least 10 days at 135° C”

Independent Claim 1 of the ’375 Patent is directed to a “thermally stable acoustical insulation microfiber web” where “a nonvolatile thermal stabilizer or

antioxidant is uniformly distributed throughout the microfibers such that the microfibers are thermally stable for at least 10 days at 135° C.” (’375 Patent at c. 11, ll:37-48.)

Defendants argue that they do not infringe this claim because: (1) they do not affirmatively add antioxidant to increase the thermal stability of prior art meltblown polypropylene webs; and (2) the Accused Products are not thermally stable for 10 days at 135° C.

a. Added antioxidant

Defendants argue that they do not infringe this claim because they do not affirmatively add antioxidant to increase the thermal stability of prior art meltblown polypropylene webs. In support, Defendants argue that the Court’s construction of the term “uniformly distributed” requires a process in which an antioxidant is *added* to the microfibers. In support they cite to the following portion of the *Markman* Order:

The ’375 Patent describes two embodiments whereby one can achieve mixing so that the antioxidant is “uniformly distributed throughout the microfibers”: (1) the antioxidant can be added at the hopper and uniformly mixed in the extruder; or (2) the antioxidant can be added at the end of the extruder and before the die and mixing it using a static mixer. In addition, 3M has submitted evidence that a skilled artisan would understand that a polypropylene melt-blown microfiber web would not be thermally stable as required by the claim language if the antioxidant was sprayed on or if it preferentially migrated to the surface of fibers instead of being uniformly distributed.

(*Markman* Order at 28 (citations omitted).) Defendants submit that the Court’s construction is supported by the ’375 Patent because the patent does not disclose any embodiments for achieving the claimed thermal stability without adding an antioxidant or stabilizer to the neat polypropylene resin. Defendants further submit that 3M’s counsel

admitted as much at the *Markman* hearing. (Doc. No. 116 (“*Markman* Hearing Tr.”) at 39 (“So two ways of making a thermally stable web, first one is adding the antioxidant after the extruder. The second is adding it at the hopper.”). Defendants also argue that the prosecution history supports this interpretation and, to the extent that there is any antioxidant on-board the neat resin introduced in the hopper, that amount is insufficient to achieve the claimed stability. (See Dalton Decl. ¶ 13, Ex. 12 (“Lickfield Rebuttal Report”) ¶ 90.) Further, Defendants argue that they have never added antioxidant or any other thermal stabilizer, and that the only antioxidant that is present in the Accused Products is from the trace amount on-board the neat resin as received from the supplier to stabilize the polypropylene for shipment and storage. Defendants submit, via expert testimony, that the level of antioxidant is the same *de minimis* level included in resins prior to the issuance of the ’375 Patent.

3M asserts that this argument fails for several reasons. First, 3M points out that Claim 1 of the ’375 Patent does not say anything about “adding” antioxidant or how any antioxidant is “added” to the web, but rather requires uniform distribution of antioxidant or stabilizer. Second, 3M submits that the Court already rejected Defendants’ attempt to impose a process limitation of “adding” into the patent claims. Third, 3M contends that Defendants’ argument, that any antioxidant on-board the neat resin that is introduced into the hopper is insufficient to achieve the required thermal stability, mischaracterizes the ’375 Patent and is contrary to the findings in the *Markman* Order.

In the *Markman* Order, the Court considered and declined to adopt Defendants’ proposed construction of “uniformly distributed,” which would have required the process

limitation of “adding an antioxidant or thermal stabilizer to the molten polymer” after polypropylene was fed into an extruder. (*Markman* Order at 22.) The Court specifically held:

The Court first looks to the claim language of the ’375 Patent, which clearly indicates that the claims are directed to a product (thermally stable acoustical insulation), and not a process for making the product. In addition, the claim language states: “said polypropylene microfibers *formed of* polypropylene homopolymers, copolymers or blends thereof with a nonvolatile thermal stabilizer or antioxidant is uniformly distributed throughout the microfibers.” [] The words “formed of” refer to a product (polypropylene microfibers) that is “formed of” types of polypropylene with certain characteristics.

(*Id.* at 22-23.) The Court also concluded that the scope of the invention was not limited to a particular process:

[T]he Court concludes that Defendants have not established that the specification demonstrates that the patentees limited the scope of the invention to a particular method or process to create the claimed thermally stable acoustical insulation.

(*Id.* at 24.) Further, in response to Defendants’ prosecution disclaimer argument, the Court concluded:

[T]here was no clear and unmistakable disclaimer during the ’375 Patent’s prosecution. Nor does the claim language or specification support a disclaimer. Therefore, the claim language is not limited to products made by a particular process where the antioxidant is added after extrusion and immediately prior to the die. Instead, the Court concludes that “uniformly distributed throughout the microfibers” requires no further construction.

(*Id.* at 27.)

Defendants’ arguments in favor of requiring “affirmatively adding” antioxidants are similar to those made at the *Markman* stage in support of requiring a post-extrusion injection of antioxidants. And, the arguments can be rejected on similar grounds. The

Court has already determined that the product claims are not limited to a particular process. Further, the Court did not limit the claims to any method of “adding” antioxidant. Instead, the Court held that “uniformly distributed” required no further construction.

Accordingly, the Court denies Defendants’ motion for summary judgment based on the argument that the Accused Products do not infringe Claim 1 because they do not affirmatively add antioxidant.

b. “thermally stable for 10 days at 135° C”

Defendants also argue that the Accused Products are not “thermally stable.” In support, Defendants assert that two sets of heat tests prove, as a matter of law, that the Accused Products are not “thermally stable”: one test performed by Exova Group, and a second performed by Reliant Labs, Inc., both commissioned by Defendants (together, the “Tray Tests”). Defendants submit that the Tray Tests are a well-established, scientifically valid method to heat test the Accused Products, comport with the *Markman* Order, and show that the Accused Products are not “thermally stable” as claimed in the ’375 Patent. Defendants further argue that even assuming that the “dome” method tests are proper, some samples tested using the “dome” method failed, and therefore, those samples do not infringe.

The Court has denied Defendants’ motion to exclude expert opinions relating to “dome” testing. Therefore, the “dome” test results are part of the record. This evidence consists of “dome” test results that 3M argues demonstrate that Sonozorb is “thermally stable.” This evidence, considered in conjunction with the Tray Tests, creates a fact issue

as to whether Sonozorb is “thermally stable.” Thus, Defendants are not entitled to summary judgment.

c. “such that”

In the *Markman* Order, the Court construed the phrase “such that” to mean “causing the result that.” (*Markman* Order at 31.) Defendants argue that the Accused Products do not infringe Claim 1 as a matter of law because they do not have an antioxidant or thermal stabilizer uniformly distributed that *causes* thermal stability. In particular, Defendants assert that 3M does not have evidence of “but for” causation and the *de minimis* antioxidant in its products cannot cause thermal stability. In support, Defendants claim that the test evidence shows that the Accused Products contain far less antioxidant than that disclosed in the ’375 Patent.

3M points to evidence that the antioxidant present in the Accused Products causes thermal stability. (*See* Osswald Infringement Report ¶ 141.)

“[A]ntioxidants in Sonozorb act to cause the result that the microfiber web is thermally stable. This is because antioxidants are widely known in this field to stabilize and prevent the degradation of polymers. The antioxidant identified in the webs of the Sonozorb samples cause the thermal stability for a number of reasons, including that they act to prevent free radicals from breaking down polypropylene polymers. These additives or stabilizers are consumed by reacting with oxygen. Once they are consumed, the polymer is no longer protected against thermal degradation.

(*Id.*) This evidence could lead a reasonable jury to find causation. Defendants’ arguments and, in particular, those relating to Osswald’s opinion on this matter, demonstrate the existence of fact issues. Further, Defendants can draw out these issues on cross-examination or through their own expert testimony.

2. “a pressure drop of at least about 1 mm water at a flow rate of about 32 liters/min.”

The Accused Products will meet the “pressure drop” limitation if the pressure drop is greater than 1 mm water at a flow rate of about 32 liters/min. Defendants argue that, aside from 3M’s pressure drop testing evidence, 3M has no evidence that the Accused Products meet the pressure drop limitation, and therefore, Defendants are entitled to summary judgment. Defendants’ arguments, however, are linked to their *Daubert* motion seeking to exclude 3M’s pressure drop testing evidence. The Court has denied that motion.

In their motion, Defendants rely on testing conducted according to Method B. Defendants submit that Method B was the appropriate method to use because the Accused Products were affected by deformation when using Method A. However, as explained above, Defendants’ evidence of their Blue Heaven testing does not demonstrate that 3M’s testing of the Accused Products using Method A is unreliable. 3M used Method A, which is consistent with the *Markman* Order. That evidence is admissible, and therefore the record contains evidence of tests that show a pressure drop for SonoZorb above 1 mm water at a flow rate of 32 liters/minute. Such evidence could lead a reasonable juror to conclude that this limitation is met in the Accused Products. Therefore, summary judgment of non-infringement of this limitation is denied.

B. Invalidity

Defendants argue that the ’375 Patent is invalid as a matter of law. In particular, Defendants submit that the asserted claims are anticipated by, or at least obvious in view

of, the prior art. Defendants further submit that the USPTO did not have the key prior art when it issued the '375 Patent.

Patents offer protection to “whoever invents or discovers any new and useful process, . . . or any new and useful improvement thereof.” 35 U.S.C. § 101. Patent claims are also presumed valid. *Id.* § 282. This presumption can be overcome, however, by clear and convincing evidence of invalidity. *See Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91, 95 (2011). The burden of establishing invalidity rests on the party asserting such invalidity. *Id.*

a. Anticipation

A patent is invalid as anticipated if all of its claimed limitations are disclosed by a single prior art reference. *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003). In addition, “a prior art reference may anticipate without disclosing a feature of the claimed invention if that missing characteristic is necessarily present, or inherent, in the single anticipating reference.” *Id.* (citing *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991).)

Defendants argue that the Thompson Patent teaches meltblown polypropylene microfiber webs having identical average effective fibers diameters, thicknesses, densities, and pressure drops as the claimed invention of the '375 Patent, as well as incorporating antioxidant into the web. Defendants further argue that the asserted claims are anticipated by the Thompson patent using the “dome” test method. Defendants argue that the only alleged improvement in the '375 Patent is making the prior art Thompson web “thermally stable” for 10 days at 135° C, and that the only reason the Thompson web

would not satisfy the '375 Patent is because 3M was using a tray test in the 1990s. Specifically, Defendants assert that the '375 Patent teaches that webs without antioxidant added survived heat age testing on an open tray for four days, the Thompson webs would have lasted more than 10 days at 135° C in a dome, and the only way the Accused Products sometimes survive 10 days at 135° C is when tested in a dome. Defendants assert that Thompson therefore inherently anticipates the “thermal stability” claimed in the '375 Patent when “thermal stability” is “dome” tested.

Evidence of inherent anticipation “must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *Continental Can Co.*, 948 F.2d at 1268. “To serve as an [inherent] anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence.” *Id.* Thus, Defendants must provide clear evidence that webs disclosed in Thompson would “necessarily” have been “thermally stable” if tested using the “dome” method.

In the *Markman* Order, the Court explained that “the Thompson Patent did not teach a thermally stable web, and the references to antioxidants in the Thompson Patent do not rise to the level of teaching that antioxidants will result in a thermally stable web.” (*Markman* Order at 26.) Defendants assert that the webs disclosed in the Thompson Patent would have “necessarily” been thermally stable if tested using the “dome” tests. 3M disputes this, and points to evidence that Thompson webs were made from a type of resin that consumed antioxidants and required higher processing temperatures, while the

Accused Products are made from a type of resin that does not consume antioxidants. (*See* Osswald Infringement Report ¶ 71; Osswald Validity Report ¶ 40.) This evidence creates an issue of fact as to inherent anticipation. Therefore, Defendants have not met their evidentiary burden to establish invalidity based on anticipation, and summary judgment on this issue is denied.

b. Obviousness

Defendants also argue that the asserted claims would have been obvious in view of Thomson alone, or in combination with U.S. Patent No. 5,057,710 (“Nishiura”), and optionally in view of R.L. Gray, Accelerated Testing Methods for Evaluating Polyolefin Stability, in *Geosynthetic Testing for Waste Containment Applications* (R. M. Koerner ed., 1990) (“Gray”).

A patent is invalid for obviousness “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103(a). Obviousness is predicated on several factual inquiries, including : (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) secondary considerations of non-obviousness such as commercial success or long-felt need. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406-07 (2007). A patent is likely to be obvious if it merely yields predictable results by combining familiar elements according to known methods. *Id.* at 416. A party seeking to invalidate a patent based on obviousness must establish by clear

and convincing evidence that “a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *InTouch Techs. Inc. v. VGO Commc’ns., Inc.*, 751 F.3d 1327, 1347 (Fed. Cir. 2014). When determining obviousness, courts must consider “interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art.” *KSR Int’l Co.*, 550 U.S. at 418. “[I]n addressing the question of obviousness a judge must not pick and choose isolated elements from the prior art and combine them so as to yield the invention in question if such a combination would not have been obvious at the time of the invention.” *Abbott Labs. v. Sandoz, Inc.*, 544 F.3d 1341, 1348 (Fed. Cir. 2008.) Moreover, the court must guard against “slipping into the use of hindsight.” *Id.* (citations omitted).

Defendants argue that the inventors of the ’375 Patent sought to address a known problem with thermo-oxidative degradation in meltblown polypropylene webs by adding antioxidant, and that it was well-known that antioxidants could be used to stabilize polypropylene polymer compositions (Dalton Decl. ¶ 4, Ex. 2 (“Lickfield Invalidity Report”) ¶¶ 68-97.) Defendants further assert that Thompson discloses the addition of antioxidants, and it would have been obvious to a person of ordinary skill in the art to make the Thompson web more thermally stable by adding more antioxidants to the hopper, and that thermal stability would be increased by increasing the amount of

antioxidant. Defendants also claim that the PTO recognized this in its initial rejection of the application underling the '375 Patent. (Dalton Decl. ¶ 11, Ex. 9 at 5.)¹⁸

Defendants further argue that even if Thompson alone did not render Claim 1 obvious, the combination of Thompson and Nishiura does. In support, Defendants submit that Nishiura discloses a non-woven meltblown polypropylene web with ultrafine fibers having thermal stability by virtue of .01%-2% more antioxidant, and that the antioxidants were added to meltblowing and remained present in the final product. (*Id.* ¶ 35, Ex. 33 at Abstract; Lickfield Invalidity Validity Report ¶ 72.) In addition, Defendants argue that Gray teaches that the addition of antioxidants increases the stability of polypropylene and that stability increases at increasing concentrations of antioxidant. (Dalton Decl. ¶ 36, Ex. 34 at 61-62; Lickfield Invalidity Report ¶ 186.) Defendants submit that a person of ordinary skill in the art would have had a reasonable expectation that the addition of antioxidant to a meltblown polypropylene acoustical insulation web would improve thermal stability. (Lickfield Invalidity Report ¶ 156.) Further, a person of ordinary skill in the art would have been motivated to combine Thompson and Nishiura and/or Thompson, Nishiura and Gray. (*Id.* ¶ 157.) Finally, Defendants argue that dependent Claims 7 and 8, which claim webs with specific molecular weight ranges, would have been obvious in light of Thompson, Nishiura, and U.S. Patent No. 5,814,404 ("Rutherford").

¹⁸ 3M overcame the rejection during prosecution of the '375 Patent. (*See Markman* Order at 13-14; Osswald Validity Report ¶¶ 213-15.)

The evidence upon which Defendant rely to support their obviousness argument is contested. In particular, 3M submits evidence regarding the scope and content of the prior art, differences between prior art and the claim at issue, secondary factors, motivation to combine, and reasonable expectation of success. For example, 3M points to evidence attesting to the complexity of the technology and material differences between meltblowing and other types of polypropylene manufacturing that would lead a person of skill in the art to *not* believe that the use of antioxidants or thermal stabilizer in connection with one type of polymer product would lead to success with a meltblown polypropylene microfiber web. (Osswald Validity Report ¶¶ 71, 182.) In addition, as the Court touched on in the *Markman* Order, there are differences between Thompson and the claims of the '375 Patent, and 3M submits evidence that it would not have been obvious to modify the invention of Thompson to include a thermal stabilizer uniformly distributed throughout the microfibers. (*Id.* ¶¶ 125-142, 211-215.) Third, 3M points out that Nishiura is directed to a concept for stabilizing electrically charged air filtration materials, not acoustical insulation. (*Id.* ¶¶ 74-76.) 3M submits that the “stability” of Nishiura (to hold an electrical charge) is different than the “thermal stability” of the '375 Patent, and further that Nishiura is stable at much lower temperatures. 3M further submits that Gray discloses “hard plastics” and that Osswald explains that Gray would not have taught that antioxidant would work to achieve a thermally stable meltblown polypropylene acoustic insulation. Finally, 3M points out that the purpose of the invention of Rutherford is to create a material that degrades—the opposite purpose of the '375 Patent. (*Id.* ¶¶ 82, 326-335.)

The Court concludes that 3M has raised numerous issues of fact relevant to the alleged obviousness of the claims of the '375 Patent. Therefore, summary judgment on obviousness is not appropriate.

c. Indefiniteness

Because a patent is presumed valid, “[t]he party challenging the patent bears the burden of proving invalidity by clear and convincing evidence.” *Takeda Pharm. Co., Ltd. v. Zydus Pharms. USA, Inc.*, 743 F.3d 1359, 1366 (Fed. Cir. 2014). “A determination of claim indefiniteness is a legal conclusion that is drawn from the Court’s performance of its duty as construer of patent claims.” *Personalized Media Commnc’ns, LLC v. ITC*, 161 F.3d 696, 705 (Fed. Cir. 1998). Indefiniteness is an issue of law that when regarded on summary judgment is the last word until appealed. *See, e.g., ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517-18 (Fed. Cir. 2012).

Defendants argue that the phrases “10 days at 135° C,” “thermally stable,” and “a pressure drop of at least 1 mm water at a flow rate of about 32 liters/min.” are indefinite. The Court previously determined that these claims were definite. (*Markman* Order at 21, 35, 41.) Here, the issues of definiteness were considered and resolved at the *Markman* stage, and the Court discerns no reason to revisit that decision now.

C. Lost Profits

Defendants argue that 3M is not entitled to an award of lost profits because, with the exclusion of the opinions of 3M’s damages expert, Donald Gorowsky, 3M has no valid claim to those damages. Because the Court has determined that Gorowsky’s

opinions are admissible, there remain fact issues as to whether 3M is entitled to an award of lost profits and, if so, in what amount.

The Court has denied Defendants' *Daubert* motions. Therefore, 3M's experts will be allowed to testify at trial. However, there remain uncertainties as to how the record will develop, and it is possible that discrete issues related to the extent of each expert's testimony, in light of the course of the trial, may be revisited. The Court, therefore, reserves the right to alter any ruling herein as trial proceeds.

ORDER

Therefore, **IT IS HEREBY ORDERED** that:

1. Defendants' Motion for Summary Judgment (Doc. No. [184] is **DENIED**.
2. Defendants' Motion to Exclude Certain Testimony and Opinions of Osswald and Otten (Doc. No. [186]) is **DENIED**.
3. Defendants' Motion to Exclude Certain Testimony and Opinions of Osswald and Beckham (Doc. No. [188]) is **DENIED**.
4. Defendants' Motion to Exclude the Opinions of Donald A. Gorowsky (Doc. No. [190]) is **DENIED**.

Dated: July 22, 2016

s/Donovan W. Frank
DONOVAN W. FRANK
United States District Judge